

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A spinal stabilization system comprising:
 - (a) a stabilizing element comprising:
 - a first segment comprising a socket having two opposing longitudinally concave surfaces; and
 - a second segment comprising an insert having two opposing longitudinally convex surfaces,wherein:
 - the socket and the insert engage to form a the first and second segments
connected by a pivoting joint; and
 - the two opposing longitudinally concave surfaces retain the insert within
the socket;
 - (b) a first connector adapted to connect the stabilizing element to a first vertebra in a spinal column;
 - (c) a second connector adapted to connect the stabilizing element to a second vertebra in the spinal column; and
 - (d) a disc prosthesis or a disc nucleus replacement adapted to be disposed between two adjacent vertebrae in the spinal column.
2. (Original) The spinal stabilization system of claim 1, wherein the stabilizing element is a rod.
3. (Canceled)

4. (Original) The spinal stabilization system of claim 1, wherein the first and second connectors comprise pedicle screws, lateral mass screws or hooks.
5. (Currently Amended) The spinal stabilization system of claim 1, wherein the first ~~segment comprises a proximal end defining a generally spherical socket is generally spherical~~ and the ~~insert is generally a second segment comprises a proximal end comprising a spherical ball adapted to fit into the socket to provide a ball and socket type joint.~~
6. (Previously Presented) The spinal stabilization system of claim 5, wherein the generally spherical socket comprises a flat strip running laterally around its midsection.
7. (Original) The spinal stabilization system of claim 1, wherein:
 - (a) the first segment comprises a socket extending into its proximal end, the socket defined, at least in part, by two opposing concave surfaces separated by a gap; and
 - (b) the second segment comprises an insert formed on a neck at its proximal end, the insert comprising two opposing convex surfaces;wherein the insert fits into the socket to provide a pivoting joint.
8. (Original) The spinal stabilization system of claim 7, wherein the two opposing concave surfaces each comprises a flat strip extending laterally along at least a portion of the apex of concavity.
9. (Original) The spinal stabilization system of claim 7, further comprising a damping element disposed around the neck.
10. (Original) The spinal stabilization system of claim 7, wherein the socket is characterized by a central axis and further wherein the socket is further defined by a housing centered on its central axis and opening into the gap, the spinal stabilization system further comprising a damping element disposed within the housing.

11. (Original) The spinal stabilization system of claim 7, wherein the central axis of the socket is not parallel to the longitudinal axis of the stabilizing element.
12. (Original) The spinal stabilization system of claim 1, further comprising:
 - (a) a second stabilizing element comprising a third segment and a fourth segment, the third and fourth segments connected by a pivoting joint;
 - (b) a third connector adapted to connect the second stabilizing element to the first vertebra; and
 - (c) a fourth connector adapted to connect the second stabilizing element to the second vertebra.
13. (Original) The spinal stabilization system of claim 12, further comprising a transverse connector connecting the first stabilizing element to the second stabilizing element.
14. (Original) The spinal stabilization system of claim 13, wherein the transverse connector comprises a first segment and a second segment, the first and second segments connected by a pivoting joint.
15. (Original) The spinal stabilization system of claim 1, further comprising a tissue growth-resistant material disposed around the pivoting joint.
16. (Original) The spinal stabilization system of claim 1, wherein the first and second segments are comprised of a plurality of interconnecting sections.
17. (Previously Presented) The spinal stabilization system of claim 1, further comprising one or more prosthetic vertebral bodies adapted to be disposed within the spinal column.
18. (Original) The spinal stabilization system of claim 1, further comprising:
 - (a) a socket extending into a proximal end of the first segment;

- (b) a pin extending outwardly from a proximal end of the second segment, the pin comprising a distal end and a collar extending radially outwardly from the pin; and
 - (c) a first damping element disposed around the pin above the collar and a second damping element disposed around the pin below the collar;
- wherein the pin and the first and second damping elements extend into the socket to form a joint allowing multidirectional pivoting of the pin in the socket.
19. (Original) The spinal stabilization system of claim 7, wherein the one of the first or second segments comprises at least one tab extending outwardly from its proximal end, the at least one tab defining a window, and the other of the first or second segment comprises at least one arm extending outwardly from its proximal end and through the window of the at least one tab.
20. (Original) The spinal stabilization system of claim 19, further including at least one damping element disposed around the at least one arm.
21. (Currently Amended) A spinal stabilization element comprising:
- (a) a first segment comprising a socket extending into its proximal end, the socket defined, at least in part, by two opposing concave surfaces separated by a gap wherein the two opposing concave surfaces are concave in a longitudinal direction of the socket;
 - (b) a second segment comprising an insert formed on a neck at a proximal end of the second segment, the insert comprising two opposing convex surfaces wherein the two opposing convex surfaces are convex in a longitudinal direction of the insert;
 - (c) a first connector adapted to connect the stabilizing element to a first vertebra in a spinal column; and
 - (d) a second connector adapted to connect the stabilizing element to a second vertebra in the spinal column;

wherein the two opposing longitudinally concave surfaces retain the insert within ~~fits into~~ the socket to provide a pivoting joint.

22. (Currently Amended) The spinal stabilization system of claim 21, wherein the two opposing concave surfaces each comprises a flat strip extending laterally along ~~at least~~ a portion of the apex of concavity.
23. (Original) The spinal stabilization system of claim 21, further comprising a damping element disposed around the neck.
24. (Original) The spinal stabilization system of claim 21, wherein the socket is characterized by a central axis and further wherein the socket is further defined by a housing centered on its central axis and opening into the gap, the spinal stabilization system further comprising a damping element disposed within the housing.
25. (Original) The spinal stabilization system of claim 21, wherein the central axis of the socket is not parallel to the longitudinal axis of the stabilizing element.
- 26-42. Canceled.
43. (Previously Presented) The spinal stabilization system of claim 4, wherein the pedicle screw or lateral mass screw has a coarse thread.
44. Canceled.